

CHAPTER 1

A COMPLEX WEB OF DECISIONS

STEPHEN J. HOCH
The Wharton School

HOWARD C. KUNREUTHER
The Wharton School



What is the cost of poor decisions? The accumulated trading losses of over \$1 billion by Barings Bank trader Nick Leeson led to one of the most spectacular collapses in banking history. But while one rogue trader was at the heart of the disaster, it was actually the result of a complex web of decisions—personal, managerial, and societal.

*He who has a choice has trouble.
Danish proverb*

As a manager, every day you face a myriad of decisions from the time you wake up in the morning until the time you go to sleep at night. Some of these decisions are fairly mundane, but others have a significant impact on the future of your life, your organization, and your career. Making the right choices is crucial. While the impact of anyone's decisions is far-reaching, managers' decisions have particular significance because they affect all the people who report to them and the businesses they manage. For this reason, making better decisions is a key concern of managers and their organizations.

Most of us do not make great decisions, and few of us are aware of this fact. We think we are making excellent decisions, and as long as the results are good, we don't look too closely at our decision processes. For long periods, we may be fortunate that the world is forgiving and some poorly made decisions lead to positive outcomes. We congratulate ourselves for walking along the cliff's edge and not falling, but do not fully appreciate how close we may have come to disaster. It usually is only when we have a spectacular failure that we sit back and look at our decision processes. We then ask the questions we should be asking every day: What are my goals and objectives? What are my assumptions? What are the potential pitfalls? How could I make better decisions? It is usually only when we look at our failures that we actually improve our decision making.

We have an opportunity to be more proactive. We need to make these decision processes conscious, to be aware of when we are cutting corners and when we need more thorough analysis. Building this awareness of the process—especially given the new complexities of decision making in our modern age—is crucial to successful management. We cannot always guarantee positive outcomes; many factors that affect these outcomes are out of our control. This awareness, however, ensures that we follow a coherent and conscious process that leads to better decisions.

The goal of this book is to build this awareness of the intricacies of the decision-making process. For the most part, efforts to improve managerial

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decision making have relied on formulas and frameworks for systematically making choices. This is an important first step, because a systematic approach can help avoid imprecision in the decision process. Our book, however, takes a different approach, drawing on several decades of research into the psychological, interactive, and temporal aspects of decision making. We reflect the insights of researchers who studied how people make decisions and how they can make better ones. This book offers research-based insights on diverse aspects of making better decisions rather than simplistic formulas for making decisions.

This book looks at decision making from various levels. First, you make decisions as an individual. The decisions are often influenced by emotions, intuitions, and a focus on present versus future consequences. How do these factors influence decision making? How can we use these personal assets and foibles to make better decisions? Second, we make decisions in our role as manager. We may be more concerned in this role with using models to set up decision processes in our organization, balancing speed and reflection, dealing with complexity and reframing questions to break out of traditional mind-sets. Third, we make decisions in the context of negotiations and other multiparty interactions. Learning across several rounds of interaction, the power of reputations, deception in negotiations and the impact of e-mail and the Internet on bargaining are critical issues. At the broadest level, we need to consider how societal decisions on issues such as environmental protection, risks from catastrophes, and health care coverage can be managed. Decisions about these issues involve a mix of personal and collective values and reflect quirks in how we prepare for high-impact, low-risk events such as earthquakes. We also tend to like to keep our options open, to follow the crowd even when it is going in the wrong direction, and, surprisingly, we sometimes have very different approaches to our public and private decisions.

Effective decisions at all these different levels can produce outstanding outcomes. Yet, the right decisions are by no means easily discernible at the time the decision is made. When managers decided to launch the ill-fated Challenger space shuttle, the concerns about the O-rings that ultimately led to the explosion were buried in a vast sea of thousands of other decisions and concerns leading up to the launch. Poor decisions at different levels may lead to disastrous consequences. A venerable banking institution and an obscure—but soon to become infamous—trader named Nick Leeson

learned this lesson the hard way, illustrating how complex webs of decisions can lead to success or failure.

A MOMENT OF DECISION

Nick Leeson was a bit nervous about the new trader he hired at the Barings Futures Singapore (BFS) office. He tried sticking close by her when the trading opened. But the day was crazier than usual and that was impossible. At the end of the day, he discovered she'd made a terrible mistake: She'd *sold* contracts when she should have *bought* them. Making good to the client would cost the firm 20,000 pounds sterling. Leeson had only been in the job a few months, and was thousands of miles from the home office in an exotic city.¹

Nick Leeson faced a seemingly minor decision on the evening of Friday, July 17, 1992. Should he reveal the error to his superiors or conceal it? He decided to hide the mistake. What he justified initially as a desire to protect one of his employees snowballed into a habitual hiding of his own trading errors in the derivatives market—deceptions that three years later brought down one of the world's oldest financial institutions. How did a back office clerk in his twenties become responsible for bankrupting one of the world's oldest merchant banks? The answer: many bad decisions.

Leeson alone didn't bring down Barings. There were decisions at multiple levels—complex webs of decisions—that either encouraged his actions or created the holes through which he slipped. Beyond Leeson's own personal mistakes, there were managerial decisions that caused his supervisors to fail to challenge his actions, there were negotiations on the trading floor and with supervisors, and finally there was the broader social context of global financial regulations. When decision making at all these levels goes very wrong, mistakes are compounded and the final outcome can be fatal.

At the center of this storm of bad decisions was Leeson, who started his career by fixing the errors of others. In open-cry markets, where traders call out their orders to buy and sell, errors frequently occur. They are caught and corrected, usually within 24 hours, in the settlements department. Leeson had a knack for this type of dogged detail work and it helped him get his job at Barings Securities in 1989.

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Within a year, Leeson was sent to the Barings' Jakarta branch to wade through the mountain of paperwork that lay idle in its settlements office. He helped Barings "to get rid of its 100 million pound hole" in its balance sheet.² His star at Barings was beginning to rise. Following his success in Jakarta, in 1992 Barings offered Leeson the position of running its new futures subsidiary in Singapore.³

It would be three years before Leeson's errors came to light and by then his own trading losses had accumulated to over \$1 billion and took Barings down. Leeson pleaded guilty in December 1995 to having deceived Barings' auditors and having cheated SIMEX (Singapore International Monetary Exchange). He was sentenced to a six-and-a-half year term in a Singapore prison.

Lessons for Managers

Barings and Leeson made a number of strategic errors in decisions that contributed to the bank's collapse, including:

- *Being blinded by emotions.* Managers were overly enthusiastic about Leeson and so overlooked glaring problems. Not only did one of the oldest and most conservative merchant banks in England hire someone with no experience at trading, but it also hired someone who was being taken to court for outstanding debt.⁴ Within days of arriving in Singapore, Barings received notice from the Securities and Futures Authority in London about two outstanding debts he owed (by one account, totaling over 2,000 pounds).⁵ Leeson had not mentioned these debts on his application for a trader's license in London.

Barings' management took a permissive, boys-will-be-boys attitude, and decided to look the other way. The lure of enormous profits in the emerging Southeast Asian markets was great, and Leeson was their golden boy. Leeson's supervisors clearly liked the job he was doing with settlements, a process none of them knew nearly as well as he did. Because they liked Leeson, they were reluctant to see his faults. The internal audit Barings conducted in 1994, which failed to expose Leeson's hidden errors on trading Nikkei 225 contracts (which by then had accumulated to more than 50 million pounds), was clouded by one of

the auditors' admiration for Leeson.⁶ Managers let emotions get in their way (greed, admiration for Leeson) so they made less effective decisions. The impact of emotions on decisions is discussed by Mary Frances Luce, John W. Payne, and James R. Bettman in Chapter 2.

- *Overreliance on intuition.* The Bank of England cited Barings' "managerial confusion" as contributing to an environment in which a dishonest employee could flourish. When Barings entered the futures business, it was essentially a one-man operation (Christopher Heath) that relied on an instinctive style of management. As business expanded rapidly, Heath and Barings failed to recognize that such an intuitive management style was no longer appropriate.⁷ In Chapter 5, Stephen J. Hoch shows how both computer models and human intuition have strengths and weaknesses, so that it may often be more effective to combine the two for improving decision making rather than just using one or the other alone.
- *Emphasis on speed.* Barings executives also appeared to make decisions quickly, racing to take advantage of market opportunities and failing to institute a sufficiently rigorous system of controls. When Barings discovered problems with Leeson's record, the firm decided it was more important to get the Singapore office up and running than pay attention to such details. This Westernized, time-is-money, attitude contrasts with an Eastern view, which emphasizes patient reflection. Karen A. Jehn and Keith Weigelt explore these two contrasting views of decision making in Chapter 6. The expedient, time-is-money mode may not always lead to the very best choice, but there are times when speed is critical.
- *Failure to detect deception.* Barings' managers, like most people, overestimated their ability to detect deception. Essentially, Barings was "killed in an eyeblink by a problem they didn't even know they had."⁸ Because Barings' managers didn't consider the possibility that Leeson could be cheating them, they didn't look for signs of deceit. Recognizing deception in negotiations is actually more difficult than people think, as Maurice E. Schweitzer discusses in Chapter 11.
- *Underestimating risks.* Leeson not only worked as the Jakarta branch's settlements clerk, but he also served as Barings' floor manager on the SIMEX—a breach of one of the basic rules of thumb in the securities

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industry.⁹ Usually separate individuals hold these positions because they are supposed to serve as checks on one another: The trader's job is to make money and the settlement clerk's job is to fix errors that traders make. Leeson would prove to be very good at fixing (or at least hiding) his own errors. By making this decision, Barings' managers significantly increased their risks, but no one apparently understood how significantly. In the wake of the collapse of Barings, many other banks implemented much more stringent policies. Decision makers have great difficulty in evaluating low-probability, high-risk events before disaster strikes, so they tend to underprotect themselves beforehand and overprotect themselves afterward, as examined by Howard C. Kunreuther in Chapter 15.

- *Insufficient information technology for decision support.* Communications and information technology for decision support also broke down. Stephen Fay notes in his 1996 book, *The Collapse of Barings*, that as the securities division grew, "Resources were not committed to developing global computer systems which would enable management in London to know the firm's position anywhere in the world; nor was information technology applied to risk management."¹⁰ Furthermore, the management at Barings failed to look at how technological advances, such as computer-assisted programs for risk management and electronically transferring money, could have prevented such long-term dishonesty. In Chapter 12, G. Richard Shell shows how technological advances have changed the way people negotiate and come to decisions, and how these new tools can both help and hurt the decision process.
- *Insufficient regulation.* As a result of Barings' collapse, the Bank of England, which oversees the banking industry in England, in 1997 began a "controversial reshaping of the way Britain's financial industry . . . is policed."¹¹ But these public protections faced private opposition. Critics have cautioned that the new laws could not only overwhelm regulators but also may cause certain investors to shift to other markets that are less stringently regulated. Further, increased fees for such regulation could discourage some investors. In Chapter 17, Mark V. Pauly looks at the many cases in which people make inconsistent decisions in public and private contexts.

Investigations by British, American, and Singapore institutions have raised questions about the management structure in place at Barings that contributed to the atmosphere that allowed a trader like Leeson to go haywire in the first place.¹² The Bank of England, while pointing to Leeson as the sole perpetrator of the fraud, also concluded that the astounding losses (around 700 million pounds or \$1.2 billion U.S.) were incurred due to a “serious failure of controls and managerial confusion within Barings.”¹³ In other words, many people made many unwise decisions—as individuals, managers, negotiators, and, perhaps, as regulators—which had a compound impact leading to Barings’ collapse.

The principal goal of this book is to help managers make better decisions at each of these levels. A deeper understanding of the process of decision making and strategies for making better decisions can give managers the tools and insights to improve their decisions. While this knowledge will not prevent all poor decisions (even well-formulated decisions can sometimes lead to negative outcomes), this deeper understanding of decision making can make the process more conscious, informed, and deliberate.

WHAT WE KNOW ABOUT DECISION MAKING

Humans are not well equipped to make the best decisions all or even most of the time. While decisions have been made from the moment of human consciousness, it has only been in recent times that we have systematically studied decision making and brain functioning, to gain new insights into how decisions are made.

Interest in the process of decision making is as old as human history. The dilemmas of choice in the face of an uncertain and complex world have long been the focus of religion, literature, and philosophy. From classic epic poems to modern philosophers, human choices have been the object of fascination, speculation, and education. But it was not until recent times that decision making and decision processes have been subject to systematic investigation. The emergence of the field of decision sciences draws insights from philosophy, economics, biology, psychology, and sociology.

In particular, business researchers have been very interested in the process of managerial decision making. As researchers explore ways to

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improve operations, develop human resources, manage risks, create strategy, plan marketing, and engage in diverse other management activities, decision making is at the heart of all these issues. The strength or weakness of managerial decisions is the linchpin of the business enterprise.

The Wharton School of the University of Pennsylvania has been a pioneer in this study and continues to address new challenges in a wide variety of applied areas such as consumer behavior, health care, and environmental and catastrophic risks, drawing on different disciplines ranging from marketing to operations management to policy analysis. This systematic work has offered new insights into decision making. While these insights have been published in academic circles, many of them have not made their way into the hands of managers. Bridging this gap is one of the reasons Wharton faculty in this area joined forces to write this book.

While there is still much that we don't know about decision making, more than three decades of systematic research on decisions has provided insights on a variety of issues. The approach to decision making we are taking can be viewed at three different levels—what should be done based on rational theories of choice (*normative models*), what is actually done by individuals and groups in practice (*descriptive behavior*), and how we can improve decision making based on our understanding about differences between normative models and descriptive behavior (*prescriptive recommendations*).

Normative analyses of choice have focused on how problems should be solved by making the assumption the decision maker has formulated a well-specified set of alternatives. In making choices, a rational consumer or manager is assumed to determine the utilities of different outcomes from each alternative. If the decision has uncertain consequences, these utilities are weighted by their probabilities and the individual determines the “expected utility” of each alternative. The alternative with the highest expected utility is then selected as the final choice. In other words, we weigh all the options carefully and choose the one with the highest payoff for us.

In reality, individuals often behave very differently from what this theory suggests. Another stream of behavioral research has studied what decision makers actually do. When there are uncertain outcomes many decision makers either do not take into account probabilities explicitly in their choices or use this information in rather strange ways when viewed from

a normative perspective. For example, it is not uncommon for individuals to say, “This won’t happen to me” and disregard a potentially disastrous event, even though they know in reality that it has a chance of occurring.

With respect to choices between alternatives, we may be able to change people’s preferences just by asking the same question in a different way—the framing problem. People are more likely to choose certain insurance options (such as limited tort) if they are forced to opt-out rather than asked to opt-in. They therefore make very different decisions about the same set of options merely because of how the choices are presented. Similarly, people have a much harder time giving up something than acquiring it (loss aversion), even though it is the same object with the same value.

Human beings do not, in general, follow logical models of choice. Decisions are not made in frictionless environments. Just as classical physics offers insights into mechanics, normative models offer insights into the process of decision making. But these models are not the world. We thus need to carefully observe how people actually make decisions, when designing strategies for consumers and managers as illustrated in Parts I and II of this book.

When there are several parties involved in making a decision, the world becomes more complicated because we not only have to understand each person’s decision process but also the interaction between individuals. Normative theories of choice simplify this process by assuming that everyone’s behavior follows the rule “maximize expected utility.” Since the expected utility of both sides is changing dynamically through multiple rounds of interactions, analyzing the payoffs of both sides and expected decisions can become rather complex.

Game theory is a normative approach for determining what strategies should be followed by a person who has to consider what others are likely to do. The alternatives are assumed to be well specified, as are the probabilities and outcomes. Now, the outcomes depend not only on what you are doing but also on what others are doing. Game theory places little emphasis on the process of determining what information to select for choosing between alternatives and how the different parties interact with each other. In many situations process does matter and has an impact on outcomes. For example, negotiators often get caught up in the heat of the moment, or respond to the cues of their partners rather than a detached assessment of the situation.

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At the descriptive level, the emerging field of behavioral game theory is examining how different parties negotiate with each other and what they do in determining a mutually acceptable strategy. There has been considerable research showing that individuals do not behave in the way that the normative theory suggests they should.

Prescriptive solutions to multiparty problems require us to think about process as well as outcome. Are there ways to improve the negotiation process, knowing what we do about the behavior of individuals when confronted with a specific set of options? Can we present information to the different parties on the alternatives that they face so that there is a mutually acceptable strategy that improves both their positions from the status quo? These are questions that are now at the forefront of research in this area and are discussed in Part III of this book.

At the societal level, the normative theory of choice is benefit-cost analysis, which has a flavor similar to expected utility theory. Instead of determining the expected utility of an alternative for the individual, decision makers consider the costs and benefits of a particular option for society. The policy analyst evaluates public policies that impact consumers, managers, and citizens by determining their expected benefits and costs. He or she chooses the one that maximizes net expected benefits. Individuals who are affected by these specific public policies are assumed to be making decisions using normative models of choice such as maximizing their expected utility.

At a descriptive level, we already know from work on individual behavior that consumers and managers do not maximize their expected utility, so that the assumptions of benefit-cost analysis need to be challenged. By incorporating individuals' models of choice into an analysis of societal decision making, we will have a more accurate understanding of what is likely to emerge if we recommend a particular strategy. For example, when flood insurance was initially marketed in the late 1960s, the premium was subsidized approximately 90 percent by the federal government. If we assume that individuals maximize expected utility, then we would have predicted that residents in flood-prone areas would have purchased this insurance (for some 10 percent of its actual value). In reality few did, not because they expected disaster relief, but because they didn't make the tradeoffs suggested by normative theory. The factors that influenced their

decision to buy insurance were knowing friends and neighbors who had purchased a policy and their past experience with the hazard. Hence, the policy to subsidize insurance premiums was based on a faulty model of choice and did not achieve the desired result. The chapters in Part IV of the book suggest a set of prescriptive recommendations for dealing with issues such as this one and other policy challenges.

DECISIONS AT MANY LEVELS

This book draws together insights from leading researchers on diverse aspects of decision making. The book is structured to look at decision making from several different vantage points. Part I explores the challenges of personal decisions. In Chapter 2, Mary Frances Luce, John W. Payne, and James R. Bettman examine the role emotions play in managerial decisions—for good or ill. Learning to recognize how emotions affect the daily business decisions we make—either by avoidance or delay—is the first step in constructively looking at some of the most difficult decisions any manager faces, such as laying off employees.

In studying decision making, we've come up with models that are elegant and effective but that very few decision makers actually follow. Are these decision makers foolish? In Chapter 3, Robert J. Meyer and J. Wesley Hutchinson explore how humans make surprisingly effective decisions even when using short cuts. They also identify situations in which these approaches are likely to lead to errors. To conclude Part I, Barbara E. Kahn and Andrea Morales discuss in Chapter 4 how the desire for variety can cloud decision-makers' judgments.

Part II focuses on the managerial decision-making process. There are a variety of analytic models that can be used, but how can they be combined with human intuition and other approaches to decision making? In Chapter 5, Stephen J. Hoch looks at ways to combine the strengths of humans in pattern matching with the power of computer-based models. Easterners and Westerners take very different approaches to decision making. In Chapter 6, Karen A. Jehn and Keith Weigelt examine the differences between the expedient Western approach and the more reflective Eastern strategy of decision making. Complexity is a significant challenge for decision makers, which Paul R. Kleindorfer explores in Chapter 7 using two

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examples: the electric utilities industrywide restructuring and how the insurance industry manages catastrophic risks from natural disasters in the face of much better scientific data and computer support than they have had available in the past. Finally, managers have to be able to manage their own frames, or they will be blinded by their own successes and the limits of their world views. In Chapter 8, Paul J.H. Schoemaker and J. Edward Russo look at the power of frames and offer ways for managers to make better choices.

Part III moves from a single manager to the next level of complexity—interactions among several managers in negotiations across multiple periods. Colin F. Camerer and Teck H. Ho use game theory in Chapter 9 to explore how people learn from experience by factoring in the payoffs from past decisions into the current choices, weighing options based on what the authors term “experience-weighted attraction.” In Chapter 10, Steven Glick and Rachel Croson explore how reputations affect the way partners approach negotiations and how these reputations can best be used and shaped. Maurice E. Schweitzer in Chapter 11 looks at deceptions in negotiations, the different types of lies that are used and how difficult it is to detect them. Part III concludes with G. Richard Shell in Chapter 12, discussing the impact of new technology such as e-mail and the Internet on bargaining. He focuses on technology’s strengths and weaknesses, and how decision support systems can be used to improve negotiations outcomes.

In Part IV, we move to the broadest perspective, by exploring societal decisions. In Chapter 13, John Hershey and David A. Asch show why decision makers do not always use medical tests based on analytic models, but sometimes use them to keep their options open or change their minds. People often claim to have “protected values” in making societal decisions, values, such as concern for the environment, that they claim they will not trade off at any price. In Chapter 14, Julie Irwin and Jonathan Baron explore how these immutable lines are often not as protected as they appear to be. In Chapter 15, Howard C. Kunreuther explores why people tend to underprepare for high-risk, low-probability events, such as not protecting themselves against the consequences of an earthquake or flood before the event and then overpreparing afterwards. In making broader decisions, we often look to others for guidance. In Chapter 16, Felix Oberholzer-Gee examines how this leads to lemming-like “information cascades” in which

decision makers follow one another without carefully making independent assessments. Finally, in Chapter 17, Mark Pauly explores the inconsistencies between public and private decisions. For example, people call for stricter environmental policies but then refuse to pay for them in their own purchases.

UNPRECEDENTED CHALLENGES

With the increased speed and complexity of the business environment, the insights and frameworks provided by this book are more important than ever. Faster speed in business, as in automobiles, increases the chances that a small miscalculation can lead to a serious crash. Increased complexity in business makes it harder for human beings to retool their decision making and more “moving parts” mean more things can go wrong. Information technology is one of the driving forces in unleashing this Pandora’s box of decision challenges on the world. But it also contains the hope that, used judiciously, computer models can help humans make better decisions.

This book offers current insights based on the latest research from authors who have looked at decision making from diverse perspectives. These include faculty in marketing, health care, operations and information systems, insurance and risk management, and public policy. We examine how people *should* make decisions according to the models, how they *actually* behave, and how they can *improve* their decision making.

Managers often are so caught up in making decisions that they rarely have the luxury of giving much thought to *how* they make them. Spending time thinking about the process of decision making can have significant payoffs, however, because it can help you improve the quality and effectiveness of your subsequent choices. Since making decisions is one of the central tasks of managers, improving your decision-making ability can make you a more effective manager. We invite you to join us in exploring diverse aspects of decision making—to think about the process. Knowing how to make better decisions does not assure that you will make excellent decisions, but greater awareness of the decision process will help you avoid the pitfalls and make better choices for yourself and your organization.